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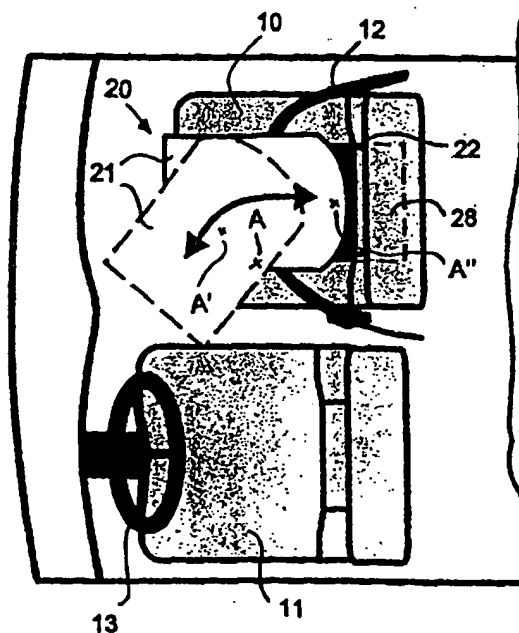
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<p>(21) International Application Number: PCT/FI97/00794 (22) International Filing Date: 17 December 1997 (17.12.97) (30) Priority Data: 970377 30 January 1997 (30.01.97) FI (71) Applicant (for all designated States except US): OY SANDE & CO. LTD. [FI/FI]; Hakkiskuja 1, FIN-20300 Turku (FI). (72) Inventor; and (75) Inventor/Applicant (for US only): SANDE, Mika [FI/FI]; Hakkiskuja 1, FIN-20300 Turku (FI). (74) Agent: TURUN PATENTITOIMISTO OY; P.O. Box 99, FIN-20521 Turku (FI).</p>		<p>(81) Designated States: AU, BR, CA, JP, US, European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE). Published With international search report. In English translation (filed in Finnish).</p>

(54) Title: A WORKING STATION

(57) Abstract

The object of the invention is a working station (20) to be temporarily located in connection with the front passenger seat (10) in a car. The working station comprises a worktop (21) kept in a substantially horizontal plane and supported against said seat (10), a console (22) leaning on the seat bottom (10a) of the front seat (10) and supporting the worktop (21), and a support means (28), which is connected to the console (22) and which limits the movement of the work station. According to the invention the worktop (21) can be easily arranged within reach of a person sitting in the driver's seat (11) for the time of working.



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A working station

The object of the invention is a working station to be temporarily located in connection with the front passenger seat in a car. The working station is intended to facilitate office work in the car.

- 5 In recent years the need to perform office work in a car has strongly increased. This is on one hand due to the ever increasing requirements on efficient work routines, and on the other hand due to the new possibilities provided by the information technology and data communication technology. When persons working in sales and marketing return to the car, such as sales representatives, travelling salesmen, pharmaceutical representatives and other professionals making business calls and corresponding, they immediately write their notes, make calculations etc. on their portable computer, and send telefaxes and electronic mail messages via a mobile phone.

- 10 However, at present it is very inconvenient to perform office work of this kind in a car. A person sitting in the driver's seat usually keeps the computer in his lap and writes in that position. However, this is very inconvenient due to lack of space and due to the fact, that the computer and any other devices anyhow have to be moved away and put into their protecting cases when driving the car. Another possibility is to work in the back seat, but then a problem is the uncomfortable sitting position, a weaker illumination, and in order to send the written messages there is often, regarding the electric wires, a too long distance to the mobile phone located on the car's dashboard.

The object of this invention is to obviate the above mentioned disadvantage and to provide a working station in a car, in order to facilitate office work performed in the driver's seat.

- 25 A particular objective is to provide a working station, which improves the ergonomics of the work, and which eliminates the need to repeatedly pack and unpack the computer and other equipment into bags.

- A further object is to provide a working station, which after the work period easily can be removed, and which at the beginning of a work period easily can be reinstalled.

30 Thus the object of the invention is a working station to be temporarily located in connection with the front passenger seat in a car, which working station comprises

- a worktop kept in a substantially horizontal plane and supported by said seat,
- a console leaning on the seat bottom of the front seat and supporting the worktop, and
- a support means, which is connected to the console and which limits the movement of the working station.

The invention is characterised in that the worktop can be easily arranged within reach of a person sitting in the driver's seat for the time of working.

The fact that the working station can easily be arranged within reach of a person sitting in the driver's seat means that the operation is easy and fast, and that it does not require the use of any special tools which do not belong to the working station. Further this means that after work the working station can be moved out of the driver's way as fast and easily, so that the car driving is not disturbed.

Particularly the intention is to keep a portable microcomputer and its peripherals on the worktop. It is important that the worktop is kept in an at least approximately horizontal position, both during working and driving, so that the equipment always would be as ready for use as possible.

The console is intended to keep the worktop at least approximately in a horizontal position and at a height which is suitable for the work. The support means is intended to prevent, or at least substantially to restrict movements of the working station during working and driving. According to a preferred embodiment the support means is a component, which is inserted between the seat bottom and the back of the seat.

According to a suitable embodiment the working station is arranged pivotal on a vertical axis. With this solution only a simple pivot movement is required to take the working station in use, as well as to put it away. The worktop is locked in the desired working position by a catch.

According to a particularly preferred embodiment the console is a briefcase having a bottom plate leaning against the seat bottom, end plates formed by the front and back plates, side plates, and a cover, which can be opened and closed, and on which the worktop is supported pivotal on a vertical axis.

The invention is described below with reference to the enclosed drawings, in which Figure 1 is a top view of the front section of a car and a working station according

to the invention arranged on the front passenger seat.

Figure 2 is a side view of the passenger's front seat and a working station according to the invention arranged on the seat,

Figure 3 is a front view of the seat with the working station of figure 2,

- 5 Figures 4A to 4B shows the side parts of the console in figure 2 according to an alternative solution,

Figure 5 shows a horizontal section of the console,

Figure 6 shows how a safety belt is fastened to the console according to a second embodiment,

- 10 Figure 7 shows a second embodiment of the side edge of the console,

Figure 8 is a side view of the working station according to the second embodiment of the invention,

Figure 9 shows the working station of figure 8 in a oblique top view, and

Figure 10 shows the working station of figure 8 in the direction of the worktop.

- 15 Figure 1 shows the front section of a car, and there is the driver's seat 11, the steering wheel 13, and the front passenger seat 10. A working station 20 is located in connection with the passenger's seat 10. The working station comprises a worktop 21 for a computer and any peripherals kept at least in substantially horizontal plane. It must be easy to arrange the worktop 21 so that it will be within reach of a person
- 20 sitting in the driver's seat 11 for the time of working, and in a similar way it must be easy to move it away for the time of driving. In the solution according to figure 1 this is arranged so that the worktop is pivotal on the vertical axis A, A' or A". The pivoting of the worktop into the operating position is shown by broken lines, and its position when the working station is not used, is shown by a continuous line. The
- 25 worktop 21 is supported against the seat 10 by a console 22 and a support means 28 connected to the console. The console 22 and the support means 28 are presented in more detail in figures 2 and 3.

- Figure 2 shows the passenger's front seat 10 and a working station 20 as seen in a side view from the driver's seat. In this solution the console 22 is a box-like component, having a bottom leaning against the seat bottom 10a of the seat 10. The con-
- 30

sole's 22 front plate 23, the side plates 25a, 25b, and the back plate 24 leaning against the back 10b of the seat, keep the worktop on the desired height. The console 22 is connected to a support means 28, which in this solution is a curved object reaching between the seat bottom 10a and the seat back 10b and being designed so that it is closely fitting to the rear part of the seat bottom 10a. The support means keeps the working station safely in its place, both during working and driving. As shown in the figures 2 and 3, the object 28 is suitably an object extending in the width direction of the seat. The object 28 can be permanently fixed to the console 22. According to another alternative it can be detached from the console when the working station is placed in its place and when it is removed.

The movements of the working station can be further restricted by fastening the seat's safety belt 12 to the console.

Figure 4A shows another embodiment of the side plate 25a. The side plate 25a extends up to the height of the worktop only at the front part. In the rearwards direction the side plate is gently sloping and approaches the bottom level. A recess 26a is arranged to keep the safety belt in place. In the opposite side plate 25b there is a corresponding recess 26b (figure 4B). This shape has the advantage that a space for storing different accessories is formed below the worktop, which are within reach from the driver's position. However, the opposite side plate 25b can form an unbroken wall (except for the recess 26b), so that the accessories can be kept in place in the storage.

Alternatively, the recesses (26a, 26b) made in the side plates can be replaced by hooks (26c, 26d (26d is not visible)) arranged in the console's front corners according to figure 6, whereby the safety belt will closely fit to the front plate 23 when it is fastened. The whole length of the top edge of the side plate 25a can also be unbroken (figure 7), whereby access to the storage under the worktop is secured by one or more openings 30.

Recesses for a computer and any other equipment can be formed in the top surface of the worktop 21. According to another alternative, or in addition to this, it is also possible to use gripping means, of which a first part is fastened to the top surface of the worktop and its counterpart is fastened to the bottom of a computer or a corresponding device. The worktop can also be a upholstered with a material, to which a device fitted with gripping means easily is attached. When desired the worktop can also be fitted with a lid 29 (see figure 3), which can be lowered over the worktop and the devices on the worktop, when the working station is not used. Naturally the

lid can also be provided with a lock.

Figure 5 shows a horizontal section of the console 22 according to one embodiment. A projection 27 is arranged in the front corner of the console 22 pointing towards the driver's seat 11, whereby the projection provides a better support for the worktop when it is pivoted into the working position.

According to the solution of figure 1 the vertical axis A, on which the worktop 21 pivots, is located adjacent the side edge 25 of the console directed towards the driver's seat, about halfway of the length of the side edge. Alternatively the pivot axis can be located (A') close to the centre point of the worktop. Further it is conceivable that the pivot axis is located (A'') at the rear of the console. However, this solutions requires that the rear part of the worktop 21 is shaped so that it allows the required rotation. When the worktop is pivoted into a suitable working position, it is locked in that position with a catch (not shown in the figures). The vertical axis can be a pole mounted in bearings in the console. Alternatively the vertical axis can be only a theoretical axis of rotation, whereby the desired rotation is secured for instance by a guiding rail (for instance a pair formed by a groove and a projection) arranged in the worktop's bottom surface and at the top edge of the console.

Alternatively it is also conceivable that the worktop can be moved within reach of a person sitting in the driver's seat with the aid of a solution based on the telescopic principle, whereby the worktop can be partly or wholly drawn out from its cover for the time of working. Naturally this principle can be combined with the pivot solution described above.

Figure 8 shows a working station according to a preferred embodiment of the invention, where the console 22 is a closed briefcase having a bottom plate 34 leaning on the seat bottom 10a, end plates formed by front and back plates 23, 24, side plates 25a and 25b, and a lid 31, which can be opened and closed. The required tools can be stored in the briefcase, and for the computer and other equipment there can be reserved spaces, in which the equipment is placed before the working station is removed from the car. The worktop 21 is supported pivotal on the lid plate 31 of the briefcase. Figure 9 shows by broken lines the worktop 21 pivoted in the working position (A is the axis of rotation). The worktop 21 is suitably fastened to the lid plate 31 by a screw joint, which can be tightened for the transport of the working station, so that the worktop can not turn in relation to the lid plate 31. The support means 28 of the working station is a curved object, permanently fixed to the bottom of the briefcase, whereby the support means is inserted between the seat back and

the seat bottom. A corresponding curved object acting as a guide for the safety belt is marked by the reference numeral 26.

5 The lid 31 and the bottom plate 34 leaning against the seat bottom 10a form between them such an angle that the lid is in the horizontal plane when the bottom plate 34 leans against the seat bottom 10a. In the solution according to figure 8 the bottom plate 34 of the briefcase rises step-wise towards the lid plate 31 at the front part of the briefcase, in other words where the briefcase does not anymore lean against the seat bottom. Heavy articles must not be placed in the front part of the briefcase, because that has a negative effect on the balance of the working station. The side plate 10 25a of the briefcase is provided with a handle 32. The locking means of the lid 31 are marked by the reference numeral 33. The worktop 21 is suitably upholstered with a material, to which a computer and any other equipment provided with gripping means will easily be fixed.

15 The working station presented in the figures 8 to 10 forms a practical and elegant entirety, which is easily mounted on the seat and easily removed.

The worktop and the console of the working station are suitably made of plastic, even if any other material in principle could be a possible choice.

20 The embodiments of the invention mentioned above are only examples of the realisation of the inventive idea. To a person skilled in the art it is obvious that different embodiments of the invention can vary within the claims presented below.

Claims

1. A working station (20) to be temporarily located in connection with the front passenger seat (10) in a car, which working station comprises
 - a worktop (21) kept in a substantially horizontal plane and supported by said seat
- 5 (10),
 - a console (22) leaning on the seat bottom (10a) of the front seat (10) and supporting the worktop (21), and
 - a support means (28), which is connected to the console (22) and which limits the movement of the work station, **characterised** in that
- 10 the worktop (21) can be easily arranged within reach of a person sitting in the driver's seat (11) for the time of working.
2. A working station according to claim 1, **characterised** in that the worktop (21) is arranged to pivot on a vertical axis (A).
3. A working station according to claim 1 or 2, **characterised** in that the console
- 15 (22) at least at in the front part and in the rear part rises upwards so that it provides a suitable height to the worktop (21).
4. A working station according to claim 3, **characterised** in that the console (22) is a substantially box-like component, whereby the console's bottom (34) leans against the seat bottom (10a) and the console's upstanding front plate (23) and possibly one or both of the upstanding side plates (25a, 25b) support the front part of
- 20 the worktop and the console's upstanding back plate (24) leans against the back (10b) of the seat.
5. A working station according to claim 4, **characterised** in that the console (22) is a briefcase, which has a bottom plate (34) leaning against the seat bottom, end
- 25 plates formed by the front and back plates (23, 24), side plates (25a and 25b), and a lid (31), which can be opened and closed, and on which the worktop (21) is supported so that it can pivot on around a vertical axis.
6. A working station according to claim 4 or 5, **characterised** in that means (26) are arranged in the side plates (25a, 25b) or in the front corners of the console for
- 30 guiding a safety belt (12).
7. A working station according to claim 5, **characterised** in that the support means (28) is permanently fixed to the bottom of the briefcase (22).

8. A working station according to claim 5, **characterised** in that the bottom plate (34) leaning against the seat bottom (10a) and the lid (31) form between them an angle, so that the lid (31) is in a substantially horizontal plane when the bottom plate (34) leans against the seat bottom (10a).
- 5 9. A working station according to claim 8, **characterised** in that the bottom plate (34) rises stepwise towards the lid plate (31) in the front part of the briefcase.
10. A working station according to any of the previous claims 5 to 9, **characterised** in that the side plate directed towards the driver is provided with a handle (32), and that the lid (31) is opened on that side which is directed towards the driver.
- 10 11. A working station according to any of the previous claims, **characterised** in that the worktop (21) is upholstered with a material, to which a device fitted with gripping means is easily attached.

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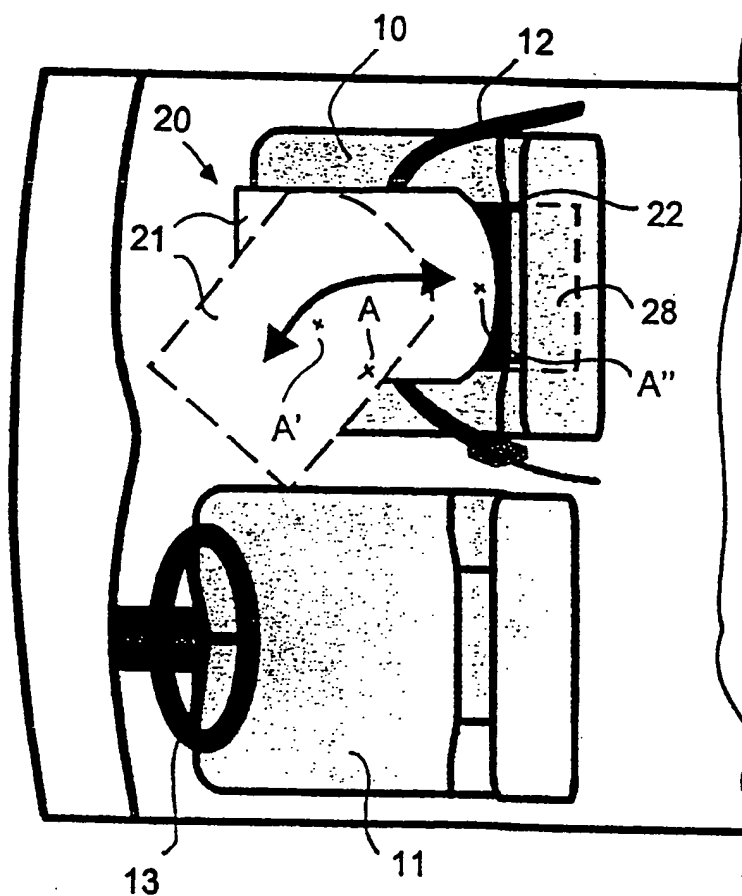


FIG. 1

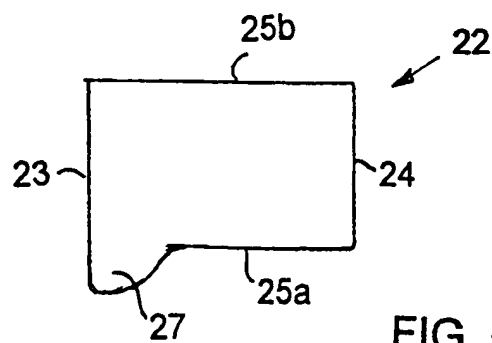


FIG. 5

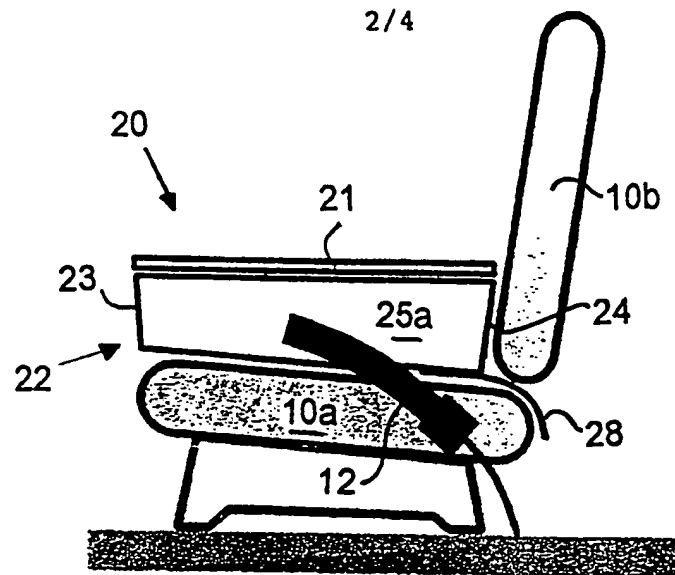


FIG. 2

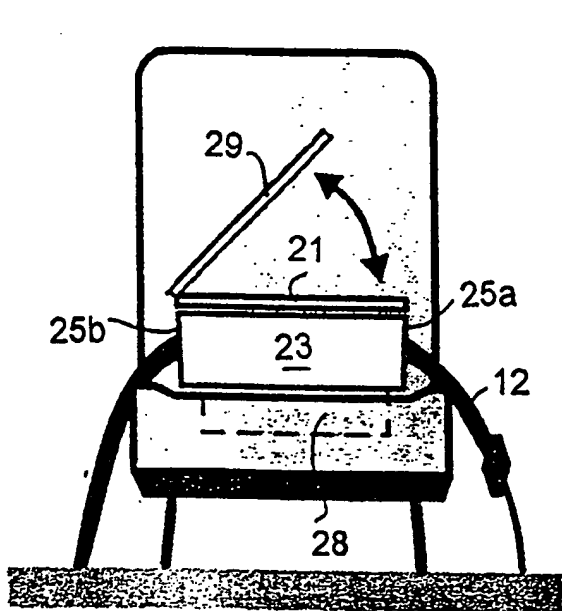


FIG. 3

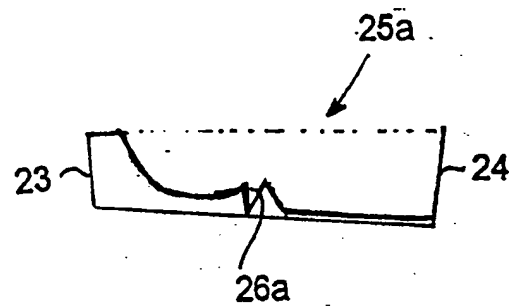


FIG. 4A

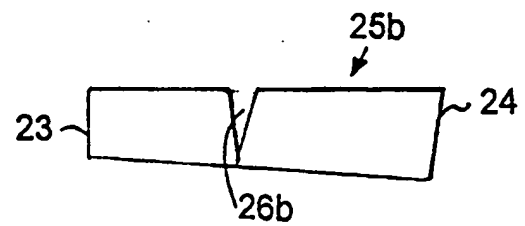


FIG. 4B

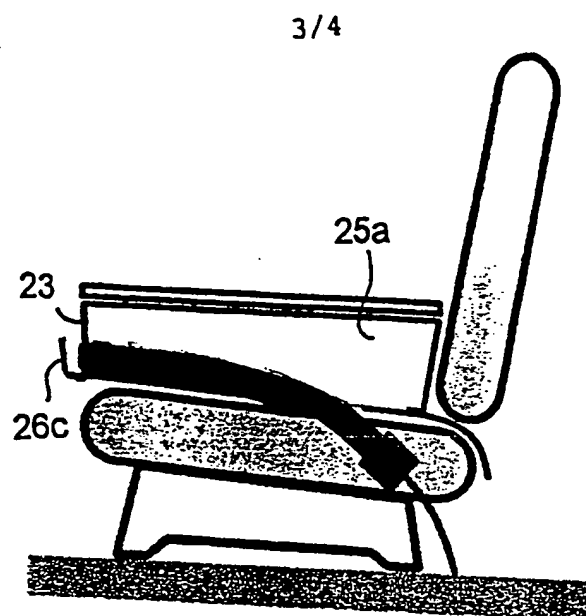


FIG. 6

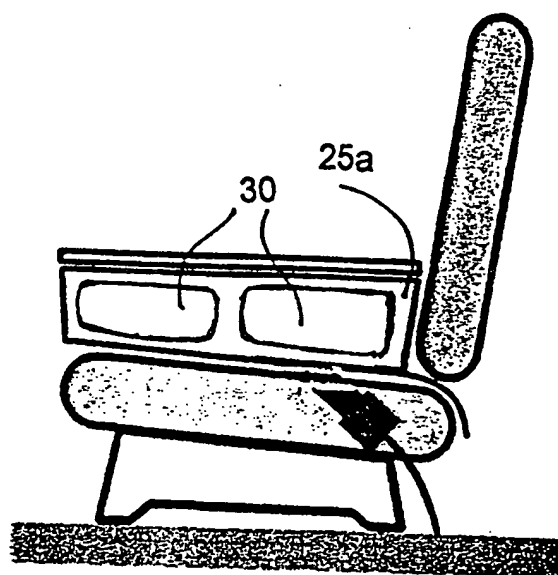
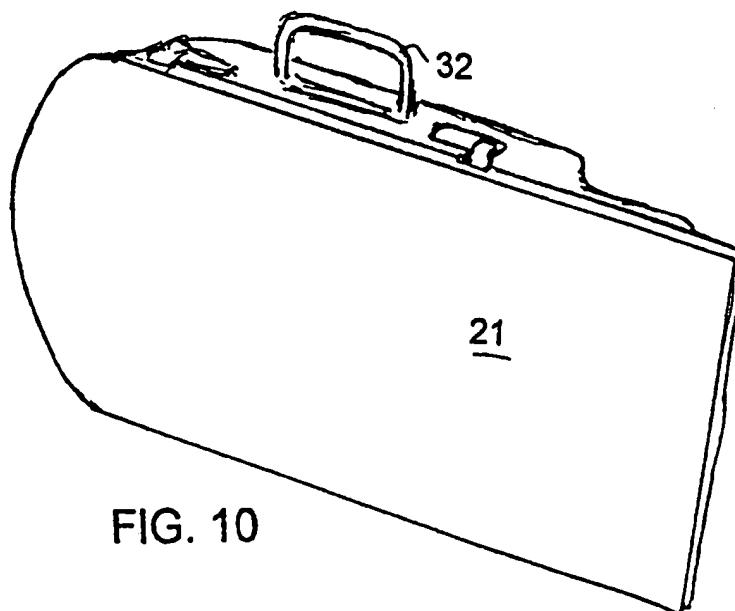
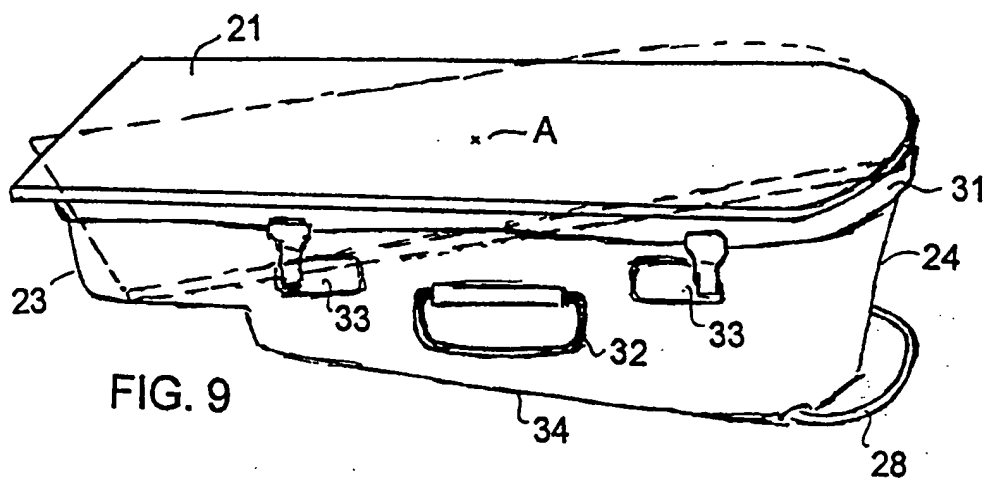
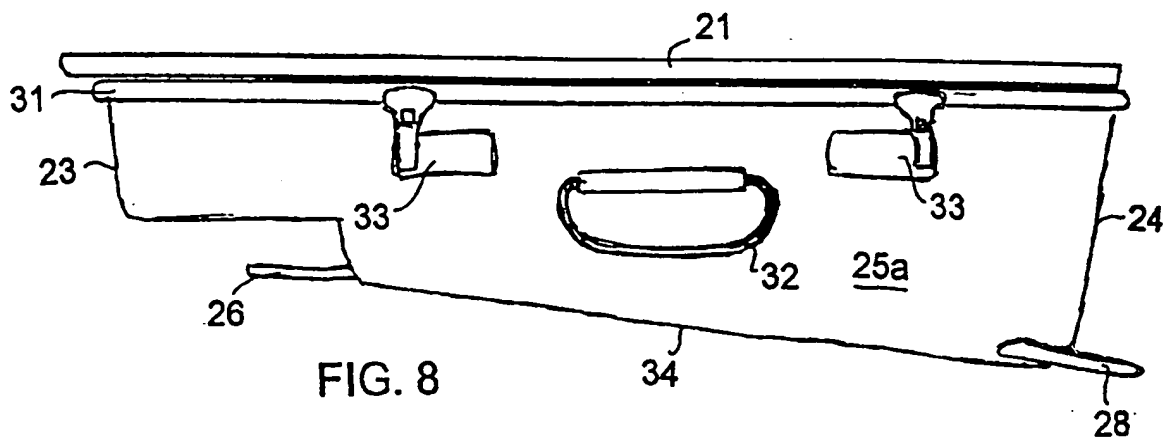


FIG. 7

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/FI 97/00794

A. CLASSIFICATION OF SUBJECT MATTER

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According to International Patent Classification (IPC) or to both national classification and IPC

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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Y	US 3632158 A (AUTO SAFETY, INC.), 4 January 1972 (04.01.72), column 1, line 74 - column 2, line 1, figure 1, claim 3, abstract --	1-11
Y	US 4832241 A (RADCLIFFE), 23 May 1989 (23.05.89), column 5, line 62 - column 6, line 17, figure 2 --	1-11

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

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INTERNATIONAL SEARCH REPORT

Information on patent family members

02/04/98

International application No.

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